IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1.   (currently amended)A performance management method provided for a computer system having a computer for executing a program and a storage apparatus for storing data used in execution of said program, said performance management method comprising:

a procedure (1) for acquiring information on a performance required for said program;

a procedure (2) for acquiring mapping information of said data used in execution of said program from said computer and said storage apparatus;

a procedure (3) for acquiring utilization statistic information from said storage apparatus;

a procedure (10) for creating a plan to change settings of said storage apparatus by using said information acquired by said procedures (1) to (3); and

a procedure (11) for issuing a request for a setting change according to said plan to change settings to said storage apparatus.,

wherein said procedure (1) includes a process for acquiring a processing execution time required for said program and estimating a processing execution time and the amount of data supplied to said program as an input.

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2.   (currently amended)A performance management method provided for a computer system in accordance with claim 1, wherein said performance management method further comprising a procedure (4) for acquiring information on a priority level of said program;, and

wherein said information acquired by said procedure (4) is also used in said procedure (10) to create said plan to change settings of said storage apparatus.

3.   (currently amended)A performance management method provided for a computer system having a computer for executing a program and a storage apparatus for storing data used in execution of said program, said performance management method comprising:

a procedure (1) for acquiring information on a performance required for said program;

a procedure (2) for acquiring mapping information of said data used in execution of said program from said computer and said storage apparatus;

a procedure (3) for acquiring utilization statistic information from said storage apparatus;

a procedure (10) for creating a plan to change settings of said storage apparatus by using said information acquired by said procedures (1) to (3); and

a procedure (11) for issuing a request for a setting change according to said plan to change settings to said storage apparatus.in accordance with claim 1

wherein; said procedure (1) includes a process for acquiring a

processing execution time required for said program, a method for estimating

a processing execution time and the amount of data supplied to said program

as an input, and

wherein said procedure (10) uses said processing execution time

required for said program, said method for estimating a processing execution

time and said amount of data input to said program in creating said plan to

change settings of said storage apparatus.

4.   (currently amended)A performance management method

provided for a computer system in accordance with claim 3, whereby wherein

said utilization statistic information acquired by said procedure (3) is used in

acquiring said method for estimating a processing execution time.

5.   (currently amended)A performance management method

provided for a computer system in accordance with claim 1 having a computer

for executing a program and a storage apparatus for storing data used in

execution of said program, said performance management method

comprising:

a procedure (1) for acquiring information on a performance required for

said program;

a procedure (2) for acquiring mapping information of said data used in

execution of said program from said computer and said storage apparatus;

a procedure (3) for acquiring utilization statistic information from said

storage apparatus;

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a procedure (10) for creating a plan to change settings of said storage apparatus by using said information acquired by said procedures (1) to (3); and

a procedure (11) for issuing a request for a setting change according to said plan to change settings to said storage apparatus,

wherein: said procedure (1) includes a process for acquiring information on a processing response time required for said program and information on an actually measured value of said processing response time on said program; and

wherein said procedure (10) uses said information on a processing response time required for said program and said information on an actually measured value of said processing response time on said program in creating said plan to change settings of said storage apparatus.

6. (currently amended)A performance management method provided for a computer system in accordance with claim 1, wherein: said storage apparatus has a port for connecting said storage apparatus to an external apparatus and has a priority-access control function for limiting an amount of processing making accesses through said port; and

wherein said plan created in said procedure (10) to change settings of said storage apparatus is a plan to change a set value of said priority-access control function.

7. (currently amended)A performance management method provided for a computer system in accordance with claim 1, wherein: said

storage apparatus has a data cache segmented into several cache areas and managed by using said cache areas and has a function of dynamically allocating said cache area onto said segmented data cache, removing said cache area from said segmented data cache and changing the size of said cache area of said segmented data cache; and

wherein said plan created in said procedure (10) to change settings of said storage apparatus is a plan to allocate said cache area onto said segmented data cache, remove said cache area from said segmented data cache and change the size of said cache area of said segmented data cache.

8.   (currently amended)A performance management method provided for a computer system in accordance with claim 1, wherein said storage apparatus has at least two physical storage means, a function of presenting a logical storage area using a storage area of said physical storage means and a physical storage location modification function of dynamically changing a relation associating said logical storage area with said storage area of said physical storage means; and

wherein said plan created in said procedure (10) to change settings of said storage apparatus is a plan to issue a command for changing said relation associating said logical storage area with said storage area of said physical storage means by execution of said physical storage location modification function.

9.   (currently amended)A performance management method provided for a computer system having a first computer for operating a

database management system, a second computer for executing a program issuing a request for a process to said database management system and a storage apparatus for storing data handled by said database management system, said performance management method comprising:

a procedure (21) for acquiring information on performance required for said program;

a procedure (22) for acquiring information on data in a database used in a process specified in said request issued by said program to said database management system;

a procedure (23) for acquiring mapping information of data used for executing said program from said first computer and said storage apparatus;

a procedure (24) for acquiring utilization statistic information from said storage apparatus;

a procedure (30) for creating a plan to change settings of said storage apparatus by using said information acquired by said procedures (21) to (24); and

a procedure (31) for issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus-,

wherein said procedure (21) includes a process for acquiring a processing execution time required for said program and estimating a processing execution time and the amount of data supplied to said program as an input.

10.　(currently amended)A performance management method provided for a computer system in accordance with claim 9, wherein said first and second computers are one and the same computer.

11.　(currently amended)A performance management method provided for a computer system in accordance with claim 9, wherein: said storage apparatus has a port for connecting said storage apparatus to an external apparatus and has a priority-access control function for limiting an amount of processing making accesses through said port; and

said plan created in said procedure (30) to change settings of said storage apparatus is a plan to change a set value of said priority-access control function.

12.　(currently amended)A performance management method provided for a computer system in accordance with claim 9, wherein: said storage apparatus has a data cache segmented into several cache areas and managed by using said cache areas and has a function of dynamically allocating said cache area to said segmented data cache, removing said cache area from said segmented data cache and changing the size of said cache area of said segmented data cache; and

wherein said plan created in said procedure (30) to change settings of said storage apparatus is a plan to allocate said cache area to said segmented data cache, remove said cache area from said segmented data cache and change the size of said cache area of said segmented data cache.

13.   (currently amended)A performance management method provided for a computer system in accordance with claim 9, wherein: said storage apparatus has at least two physical storage means, a function of presenting a logical storage area using a storage area of said physical storage means and a physical storage location modification function of dynamically changing a relation associating said logical storage area with said storage area of said physical storage means; and

wherein said plan created in said procedure (30) to change settings of said storage apparatus is a plan to issue a command for changing said relation associating said logical storage area with said storage area of said physical storage means by execution of said physical storage location modification function.

14.   (currently amended)A computer system for managing performance of a storage apparatus, said computer system comprising:

a first computer for operating a database management system;

a second computer for executing a program issuing a request for a process to said database management system;

said storage apparatus for storing data handled by said database management system; and

a management apparatus;

wherein said management apparatus is used for:

acquiring information on performance required for said program;

information on data in a database data used in a process specified in said request issued by said program to said database management system;

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mapping information of said data used in execution of said program from said first computer and said storage apparatus; and

utilization statistic information from said storage apparatus;

creating a plan to change settings of said storage apparatus by using said acquired information; and

issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus,

wherein said acquiring of information on performance includes a process for acquiring a processing execution time required for said program and estimating a processing execution time and the amount of data supplied to said program as an input.

15. (currently amended)A computer system for managing performance of a storage apparatus in accordance with claim 14, wherein said first and second computers are one and the same computer.

16. (currently amended)A computer system for managing performance of a storage apparatus in accordance with claim 14, wherein said computer system further comprising a storage control apparatus connected between said first computer and said storage apparatus and used for controlling data transfers between said first computer and said storage apparatus.

17. (currently amended)A computer system for managing performance of a storage apparatus in accordance with claim 14, wherein

said first or second computer implements a function of collecting said information of said management apparatus, creating said plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus.

18. (currently amended)A computer system for managing performance of a storage apparatus in accordance with claim 14, wherein said storage apparatus implements a function of collecting said information of said storage apparatus, creating said plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus.

19. (currently amended)A computer system for managing performance of a storage apparatus in accordance with claim 16, wherein said storage control apparatus implements a function of collecting said information of said storage apparatus, creating said plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus.

20. (currently amended)A management apparatus for managing performance of a computer system having a first computer for operating a database management system, a second computer for executing a program

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issuing a request for a process to said database management system and a storage apparatus for storing data handled by said database management system,

wherein said management apparatus is used for:

acquiring information on performance required for said program;

information on data in a database used in a process specified in said request issued by said program to said database management system;

mapping information of said data used in execution of said program from said first computer and said storage apparatus; and

utilization statistic information from said storage apparatus,

creating a plan to change settings of said storage apparatus by using said acquired information; and

issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus,

wherein said acquiring of information on performance includes a process for acquiring a processing execution time required for said program and estimating a processing execution time and the amount of data supplied to said program as an input.

21. (currently amended)A management apparatus for managing performance of a computer system in accordance with claim 20, wherein said first and second computers are one and the same computer.

22. (currently amended)A management apparatus for managing performance of a computer system in accordance with claim 20, wherein said

storage apparatus has a port for connecting said storage apparatus to an external apparatus and has a priority-access control function of limiting an amount of processing making accesses through said port; and

wherein said plan created by said management apparatus to change settings of said storage apparatus is a plan to change a set value of said priority-access control function.

23.   (currently amended)A management apparatus for managing performance of a computer system in accordance with claim 20, wherein said storage apparatus has a data cache segmented into several cache areas and managed by using said cache areas and has a function of dynamically allocating said cache area to said segmented data cache, removing said cache area from said segmented data cache and changing the size of said cache area of said segmented data cache; and

wherein said plan created by said management apparatus to change settings of said storage apparatus is a plan to allocate said cache area to said segmented data cache, remove said cache area from said segmented data cache and change the size of said cache area of said segmented data cache.

24.   (currently amended)A management apparatus for managing performance of a computer system in accordance with claim 20, wherein said storage apparatus has at least two physical storage means, a function of presenting a logical storage area using a storage area of said physical storage means and a physical storage location modification function of

dynamically changing a relation associating said logical storage area with said storage area of said physical storage means; and

wherein said plan created by said management apparatus to change settings of said storage apparatus is a plan to issue a command for changing said relation associating said logical storage area with said storage area of said physical storage means by execution of said physical storage location modification function.

25.   (currently amended)A performance management program provided for a computer system having a computer for executing a software program and a storage apparatus for storing data used in execution of said software program, said performance management program implementing a function for collecting information from said computer system, using said collected information to create a plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus by executions of:

a function for acquiring information on a performance required for said software program;

a function for acquiring mapping information of said data used in execution of said software program from said first computer and said storage apparatus; and

a function for acquiring utilization statistic information from said storage apparatus.

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wherein said function of acquiring information on performance includes a process for acquiring a processing execution time required for said program and estimating a processing execution time and the amount of data supplied to said program as an input.

26. (currently amended)A performance management program provided for a computer system in accordance with claim 25, wherein said performance management program further having a function for collecting information on a priority level of said software program;, and

wherein said computer system collects information on a priority level of said software program and uses said collected information to set a plan to change settings of said storage apparatus.

27. (currently amended)A performance management program provided for a computer system having a computer for executing a software program and a storage apparatus for storing data used in execution of said software program, said performance management program implementing a function for collecting information from said computer system, using said collected information to create a plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus by executions of:

a function for acquiring information on a performance required for said software program;

a function for acquiring mapping information of said data used in execution of said software program from said first computer and said storage apparatus; and

a function for acquiring utilization statistic information from said storage apparatus, ~~in accordance with claim 25~~

wherein~~:~~ said function of acquiring information on performance required for said software program is executed to acquire a processing execution time required for said software program, a method for estimating a processing execution time and an amount of data supplied to said software program as an input~~;~~ and

wherein said processing execution time required for said software program, said method for estimating a processing execution time and said amount of data supplied to said software program as an input are used in creating said plan to change settings of said storage apparatus.

28.   (currently amended)A performance management program provided for a computer system in accordance with claim 27, wherein said utilization statistic information acquired by one of said functions are used in creating said plan to change settings of said storage apparatus.

29.   (currently amended)A performance management program provided for a computer system having a computer for executing a software program and a storage apparatus for storing data used in execution of said software program, said performance management program implementing a function for collecting information from said computer system, using said

collected information to create a plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus by executions of:

a function for acquiring information on a performance required for said software program;

a function for acquiring mapping information of said data used in execution of said software program from said first computer and said storage apparatus; and

a function for acquiring utilization statistic information from said storage apparatus,~~in accordance with claim 25 whereby:~~

wherein said function of acquiring information on a performance required for said software program is executed to acquire information on a processing response time required for said software program and information on an actually measured value of said processing response time in said software program~~;~~ and

wherein said information on a processing response time required for said software program and said information on an actually measured value of said processing response time in said software program are used in creating said plan to change settings of said storage apparatus.

30.   (original)   A computer-readable recording medium for recording said performance management program provided for a computer system in accordance with claim 25.

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31.   (currently amended)A performance management program provided for a computer system having a first computer for operating a database management system, a second computer for executing a software program issuing a request for a process to said database management system, a storage apparatus for storing data handled by said database management system and a storage control apparatus connected between said first computer and said storage apparatus and used for controlling data transfers between said first computer and said storage apparatus, said performance management program implementing a function for collecting information from said computer system, using said collected information to create a plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus by executions of:

a function for acquiring information on performance required for said software program;

a function for acquiring information on data of a database used in a process specified in said request issued by said software program to said database management system;

a function for acquiring mapping information of said data used in execution of said software program from said first computer and said storage apparatus; and

a function for acquiring utilization statistic information from said storage apparatus-,

wherein said function of acquiring information includes a process for acquiring a processing execution time required for said program and

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estimating a processing execution time and the amount of data supplied to said program as an input.

32.   (currently amended)A performance management program provided for a computer system in accordance with claim 31, wherein said first and second computers are one and the same computer.

33.   (currently amended)A performance management program provided for a computer system in accordance with claim 31, wherein said first or second computer implements a function of collecting said information, creating said plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus.

34.   (currently amended)A performance management program provided for a computer system in accordance with claim 31, wherein said storage apparatus implements a function of collecting said information, creating said plan to change settings of said storage apparatus and issuing a command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus.

35.   (currently amended)A performance management program provided for a computer system in accordance with claim 31, wherein said storage control apparatus implements a function of collecting said information, creating said plan to change settings of said storage apparatus and issuing a

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command for changing settings in accordance with said plan to change settings of said storage apparatus to said storage apparatus.

36.   (original)   A computer-readable recording medium for recording said performance management program provided for a computer system in accordance with claim 31.